

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-019452**Date Inspected:** 21-Jan-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Field Splice W8/W9
- B). Field Splice W9/W10
- C). Pipe Supports

A). Field Splice W8/W9

The QAI observed the Complete Joint Penetration (CJP) groove welding utilizing the Shielded Metal Arc Welding (SMAW) process of the edge plate field splice identified as Weld Number (WN): 6E-7E-F1. The welding was performed by Jorge Lopez ID- 6149 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-1110A, Rev. 1. The WPS was also used by the Quality Control (QC) Inspector, Fred Von Hoff, to verify the Direct Current Electrode Positive (DCEP) welding parameters and to monitor the CJP welding. The QAI observed the QC inspector verifying the welding parameters and were noted as 125 amps. The minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with contract documents. The welding was performed in the vertical (3G) position with the work placed in an approximately vertical plane with the groove joint approximately vertical. The welding of the edge plate splice was completed during this shift.

The QAI observed the automatic Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld

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Number (WN) 8W-9W-C2. The welding was performed by welding personnel Song Tao Huang, ID-3794 utilizing the WPS ABF-D15-3042A-1 Rev. 0. The joint designation appeared to comply with AWS single-v-groove butt joint identified as B-U2a-G. The WPS was also used by the QC inspector Fred Von Hoff as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters which noted and recorded by the QAI as follows: 250 amps, 23.9 volts and a travel speed measured as 302 mm per minute. The welding was performed in vertical position (3G) at approximate incline of 22 degrees. The QAI inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. Later during the shift the QAI observed, at random intervals, the QC inspector monitoring the in process welding, the surface temperatures and verifying the DCEP welding parameters.

### C). Pipe Supports

The QAI observed the welder, Rick Kiikvee-ID-5319, perform the Complete Joint Penetration (CJP) welding of the field pipe splices for the 4" compressed air service and 2.5" utility water lines located at the W2 Bent Cap of the W-line. The welding was performed utilizing the Weld Procedure Specification (WPS) identified as 1-12-1 which was also utilized by the QC inspector, Steve Jensen, to monitor the welding and to verify the welding parameters. The QC inspector verified the welding parameters and were observed as 66 amps. The welding was performed on the pipe field splices identified as 24-2.5-W2-W, 25-2.5-W2-W, 2-2.5-W2-NW through 6-2. 5-W2-NW.

The QAI also observe the on going installation, field fit-up and tack welding of the pipe supports along the E5 grid line located on top side, "A" Deck, of the OBG identified as E2. The QC inspection was performed by Mr. Jensen utilizing the WPS identified as Fillet Murex to monitor the welding and to verify the welding parameters. The welding parameters were observed and recorded as 93 amps utilizing 2.4 mm electrodes with the welding performed in the 2F and 3F position. The welding of the pipe support identified as 110121-01 was performed by David Garcia ID-8789.

### QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspectors utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW welding process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs on page 3 of this report illustrate some of the work observed during this scheduled shift.

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### Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

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**Inspected By:** Reyes,Danny

Quality Assurance Inspector

**Reviewed By:** Levell,Bill

QA Reviewer

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